LIST OF CONTENTS
2001

Vol. 39, No. 1

Special Issue: Highlights in Toxinology

Announcements

Alan Harvey (Editor) and the Publisher — 1 — Important new developments for *Toxicon*

André Ménez — 3 — Horizons in Toxinology

Alan Harvey — 5 — Editor's Foreword

Baldomero M. Olivera and Lourdes J. Cruz — 7 — Conotoxins, in retrospect

Alan L. Harvey — 15 — Twenty years of dendrotoxins

Ornello Rossetto, Michela Seveso, Paola Caccin, Giampietro Schiavo and Cesare Montecucco — 27 — Tetanus and botulinum neurotoxins: turning bad guys into good by research

David J. Craik, Norelle L. Daly and Clement Waine — 43 — The cystine knot motif in toxins and implications for drug design

Trevor W. Stone — 61 — Endogenous neurotoxins from tryptophan

Karen K. Szumlinski, Isabelle M. Maisonneuve and Stanley D. Glick — 75 — Iboga interactions with psychomotor stimulants: panacea in the paradox?

Dietrich Mebs — 87 — Toxicity in animals. Trends in evolution?

Richard J. Lewis — 97 — The changing face of ciguatera

E. G. Rowan — 107 — What does β-bungarotoxin do at the neuromuscular junction?

Bibliography of Toxinology — 119

Vol. 39, Nos. 2–3

Visith Sitprija — 125 — The Fifth Asia–Pacific Congress on Animal, Plant and Microbial Toxins, October 12–15, 1999. Report of the Organizing Committee

Abstracts — 127 — The Fifth Asia–Pacific Congress on Animal, Plant and Microbial Toxins, October 12–15, 1999

Review

Christina R. Wilson, John-Michael Sauer and Stephen B. Hooser — 175 — Taxines: a review of the mechanism and toxicity of yew (*Taxus spp.*) alkaloids

María Eliana Lanio, Vivian Morera, Carlos Alvarez, Mayra Tejuca, Teresita Gómez, Fabiola Pazos, Vladimir Besada, Diana Martínez, Vivian Huerta, Gabriel Padrón and María de los Angeles Chávez — 187 — Purification and characterization of two hemolysins from *Stichodactyla helianthus*

Jérôme Orivel and Alain Dejean — 195 — Comparative effect of the venoms of ants of the genus *Pachycondyla* (Hymenoptera: Ponerinae)

M. H. Daurade-Le Vagueresse, C. Romiti, C. Grosclaude and M. Bounias	203	Coevolutionary toxicity as suggested by differential coniferyl alcohol inhibition of ceratocystis species growth
Janith C. Wickramaratna and Wayne C. Hodgson	209	A pharmacological examination of venoms from three species of death adder (*Acanthophis antarcticus*, *Acanthophis praelongus* and *Acanthophis pyrrhus*)
L. E. Llewellyn and J. Doyle	217	Microtitre plate assay for paralytic shellfish toxins using saxiphilin: gauging the effects of shellfish extract matrices, salts and pH upon assay performance
Xian-Chun Zeng, Wen-Xin Li, Shun-Yi Zhu, Fang Peng, Zhi-Hui Zhu, Hui Liu and Xin Mao	225	Molecular cloning and sequence analysis of cDNAs encoding a β-toxin-like peptide and two MkTx I homologues from scorpion *Buthus martensii* Karsch
Michael Adler, James E. Keller, Robert E. Sheridan and Sharad S. Deshpande	233	Persistence of botulinum neurotoxin A demonstrated by sequential administration of serotypes A and E in rat EDL muscle
Faisal F. Y. Radwan, Joseph W. Burnett, David A. Bloom, Tracy Coliano, Mohyee E. Eldefrawi, Holly Erderly, Laure Aurelian, Monica Torres and Edgar P. Heimer-de la Cotera	245	A comparison of the toxinological characteristics of two *Cassiopea* and *Aurelia* species
Koichi Sato, Kikuko Horibe, Ken-ichi Amano, Minori Mitusi-Saito, Masatoshi Hori, Shigeki Matsunaga, Nobuhiro Fusetani, Hiroshi Ozaki and Hideaki Karaki	259	Membrane permeabilization induced by discodermin A, a novel marine bioactive peptide
Emiko Ito, Fumio Kondo and Ken-Ichi Harada	265	Intratracheal administration of microcystin-LR, and its distribution
L. van der Westhuizen, G. S. Shephard and D. J. van Schalkwyk	273	The effect of a single gavage dose of fumonisin B_1 on the sphinganine and sphingosine levels in vervet monkeys
Matthew R. Ritter and Francis S. Markland Jr.	283	Differential regulation of tyrosine phosphorylation in tumor cells by contortrostatin, a homodimeric disintegrin, and monomeric disintegrins echistatin and flavoridin
Gomathi Krishnan, Maria A. Morabito and Edward Moczydlowski	291	Expression and characterization of Flag-epitope- and hexahistidine-tagged derivatives of saxiphilin for use in detection and assay of saxitoxin
Kazuhiro Ohmi, Shin Enosawa, Yoshiaki Nonomura, Takashi Tatsuno and Yoshio Ueno	303	Acceleration of actin polymerization and rapid microfilament reorganization in cultured hepatocytes by cyclochlorotin, a hepatotoxic cyclic peptide
Suely Gomes de Figueiredo, Maria Elnad de Lima, Marta Nascimento Cordeiro, Carlos Ribeiro Diniz, Debra Patten, Robert Francis Halliwell, John Gilroy and Michael Richardson	309	Purification and amino acid sequence of a highly insecticidal toxin from the venom of the Brazilian spider *Phoneutria nigriventer* which inhibits NMDA-evoked currents in rat hippocampal neurones
Jarrod E. Church and Wayne C. Hodgson	319	Stonefish (*Synanceia* spp.) antivenom neutralises the in vitro and in vivo cardiovascular activity of soldierfish (*Gymnapistes marmoratus*) venom
April K. Roberts and Clifford C. Shone	325	Modification of surface histidine residues abolishes the cytotoxic activity of *Clostridium difficile* toxin A
Marcos F. G. Rocha, Alberto M. Soares, Ronaldo A. Ribeiro and Aldo A. M. Lima	335	Absence of intestinal secretion on supernatants from macrophages stimulated with *Clostridium difficile* toxin B on rabbit ileum
Maurizio Brigotti, Paola Accorsi, Domenica Carnicelli, Simona Rizzi, Antonio González Vara, Lucio Montanaro and Simonetta Sperti	341	Shiga toxin 1: damage to DNA in vitro
Grethe Berven, Frank Sætre, Kathrine Halvorsen and Per O. Seglen	349	Effects of the diarrhetic shellfish toxin, okadaic acid, on cytoskeletal elements, viability and functionality of rat liver and intestinal cells

A. Gomes, Pallabi De and S. C. Dasgupta 363 Occurrence of a unique protein toxin from the Indian King Cobra (*Ophiophagus hannah*) venom

Albetiza Lôbo de Araújo, Aura Kamiguti and Cassian Bon 371 Coagulant and anticoagulant activities of *Bothrops lanceolatus* (Fer de lance) venom

Mikael Jolkkonen, Aldo Oras, Tanel Toomela, Evert Karlsson, Jaak Järv and Karl E. O. Åkerman 377 Kinetic evidence for different mechanisms of interaction of black mamba toxins MTα and MTβ with muscarinic receptors

Douglas O. Mountfort, Toshiyuki Suzuki and Penny Truman 383 Protein phosphatase inhibition assay adapted for determination of total DSP in contaminated mussels

Anna R. Young and Steven J. Pincus 391 Comparison of enzymatic activity from three species of nectrotising arachnids in Australia: *Loxosceles rufescens*, *Badumna insignis* and *Lampona cylindrata*

Short Communications

Patricia Saravia, Ermila Rojas, Teresa Escalante, Viviana Arce, Esteban Chaves, Rubén Velásquez, Bruno Lomonte, Gustavo Rojas and José María Gutiérrez 401 The venom of *Bothrops asper* from Guatemala: toxic activities and neutralization by antivenoms

Xian-Chung Zeng, Zhi-Hui Zhu, Wen-Xin Li, Shun-Yi Zhu, Fang Peng, Xin Mao and Hui Liu 407 Molecular cloning and genomic organization of a K^+ channel toxin from the Chinese scorpion *Buthus martensii* Karsch

Deng-Fwu Hwang, Yen-Hung Yeh, Yi-Show Lai and Jou-Fang Deng 411 Identification of cyprinol and cyprinol sulfate from grass carp bile and their toxic effects in rats

Yuji Nagashima, Noriko Tanaka, Kuniyoshi Shimakura, Kazuo Shiomi and Yasuo Shida 415 Occurrence of tetrodotoxin-related substances in the nontoxic puffer *Takifugu xanthopterus*

Anna Lankoff and Adam Kolataj 419 Influence of microcystin-YR and nodularin on the activity of some proteolytic enzymes in mouse liver

Albert Horni, Dirk Weickmann and Manfred Hesse 425 The main products of the low molecular mass fraction in the venom of the spider *Latrodectus menavodi*

Book reviews 429

Bibliography of Toxinology 431

Vol. 39, No. 4

Abstracts 439 6th Panamerican Congress on Animal, Plant and Microbial Toxins of the International Society on Toxinology, Panamerican Section. An International Meeting on Toxins as Problems, Tools and Solutions. 21–26 September 1998, Margarita Island, Venezuela

Guoying Jiang, Yunjian Xu, Xingsheng Zhu, Yanhui Su and Yuxian Zhu 469 Prokaryotically expressed *Buthus martensii* Karsch insect depressant toxin has insecticidal effects

Andrey Mikhailov, Ann-Sofi Härmälä-Braskén, Jussi Meriluoto, Yulia Sorokina, Daniel Dietrich and John E. Eriksson 477 Production and specificity of mono and polyclonal antibodies against microcystins conjugated through N-methyldehydroalanine

M. Lamkadem, A. Melhaoui, J. Mimouni and R. Fontonge 485 Cytotoxic effect and electrophysiologic activity of (R)-bgugaine, an alkylpyrrolidine alkaloid against MRC-5 fibroblasts

Kuan Peng, Xiang-Ding Chen and Song-Ping Liang	491	The effect of Huwentoxin-I on Ca^{2+} channels in differentiated NG108-15 cells, a patch-clamp study
So Yean Cho, Bum-Soo Hahn, Kyoung Youl Yang and Yeong Shik Kim	499	Purification and characterization of calobin II, a second type of thrombin-like enzyme from *Agkistrodon caliginosus* (Korean viper)
Toshiyuki Suzuki, Lincoln Mackenzie, David Stirling and Janet Adamson	507	Pectenotoxin-2 seco acid: a toxin coverted from pectenotoxin-2 by the New Zealand Greenshell mussel, *Perna canaliculus*
Hanne Ramstad, Stig Larsen and Tore Aune	515	The repeatability of two HPLC methods and the PP2A assay in the quantification of diarrhetic toxins in blue mussels (*Mytilus edulis*)
Elda E. Sánchez, Liza A. Soliz, María Susana Ramírez and John C. Pérez	523	Partial characterization of a basic protein from *Crotalus molossus molossus* (northern blacktail rattlesnake) venom and production of a monoclonal antibody
Carlos Alvarez, Isabel F. Pazos, Maria E. Lanio, Diana Martinez, Shirley Schreier, F. Casallanovo, Ana Maria Campos and Eduardo Lissi	539	Effect of pH on the conformation, interaction with membranes and hemolytic activity of sticholysin II, a pore forming cytolysin from the sea anemone *Stichodactyla helianthus*
You-Seok Koh, Kwang-Hoe Chung and Doo-Sik Kim	555	Biochemical characterization of a thrombin-like enzyme and a fibrinolytic serine protease from snake (*Agkistrodon saxatilis*) venom
Paulo Vale and Maria Antónia de M. Sampayo	561	Determination of paralytic shellfish toxins in Portuguese shellfish by automated pre-column oxidation
Shin-Jung Lin and Deng-Fwu Hwang	573	Possible source of tetrodotoxin in the starfish *Astropecten scoparius*
Karen N. Bradley, Edward G. Rowan and Alan L. Harvey	581	Effects of brucine, a plant alkaloid, on M_1 muscarinic receptors and α_1-adrenoceptors in the rabbit vas deferens preparation
Short Communication		
P. Hyenstrand, J. S. Metcalf, K. A. Beattie and G. A. Codd	589	Losses of the cyanobacterial toxin microcystin-LR from aqueous solution by adsorption during laboratory manipulations
Book review	595	
Bibliography of Toxinology	597	

Vol. 39, No. 5

S. M. K. Rates	603	Plants as source of drugs
V. Kaushal, R. K. Dawra, O. P. Sharma and N. P. Kurade	615	Hepatotoxicity in rat induced by partially purified toxins from *Eupatorium adenophorum* (*Ageratina adenophora*)
J. C. Perez, M. R. McKeller, J. C. Pérez, E. E. Sánchez and M. S. Ramírez	621	An internet database of crotaline venom found in the United States
C. E. Teixeira, S. A. Teixeira, E. Antunes and G. De Nucci	633	The role of nitric oxide on the relaxations of rabbit corpus cavernosum induced by *Androctonus australis* and *Buthotus judaicus* scorpion venoms
T. F. Salvini, S. S. Belluzzo, H. S. Selistre de Araújo and D. H. S. Souza	641	Regeneration and change of muscle fiber types after injury induced by a hemorrhagic fraction isolated from *Agkistrodon contortrix laticinctus* venom
R. E. Sheridan, S. S. Deshpande, P. Amersdorfer, J. D. Marks and T. Smith	651	Anomalous enhancement of botulinum toxin type A neurotoxicity in the presence of antitoxin
M. L. Souto, J. J. Fernández, M. Norte, M. L. Fernández and A. Martínez	659	Influence of amino acids on okadaic acid production
P. G. Sells, G. D. Laing and R. D. G. Theakston	665	An in vivo but insensate model for the evaluation of antivenoms (ED_{50}) using fertile hens' eggs

M. P. Soares, F. Riet-Correa, D. R. Smith, M. Pereira Soares, M. C. Mendez and A. L. Brandolt — 669 — Experimental intoxication by larvae of *Perreyia flavipes* Konow, 1899 (Hymenoptera: Pergidae) in pigs and some aspects on its biology

E. Kalapothakis, S. Jardim, A. C. Magalhães, T. M. Mendes, L. De Marco, L. C. C. Afonso and C. Chávez-Olórtegui — 679 — Screening of expression libraries using ELISA: identification of immunogenic proteins from *Tityus bahiensis* and *Tityus serrulatus* venom

K. Tsuji, H. Masui, H. Uemura, Y. Mori and K.-i. Harada — 687 — Analysis of microcystins in sediments using MMPB method

T. Bruhn, C. Schaller, C. Schulze, J. Sanchez-Rodriguez, C. Dannmeier, U. Ravens, J. F. Heubach, K. Eckhardt, J. Schmidtmayer, H. Schmidt, A. Aneiros, E. Wachter and L. Béress — 693 — Isolation and characterisation of five neurotoxic and cardiotoxic polypeptides from the sea anemone *Anthopleura elegantissima*

A. L. Teixeira Jr., B. F. Fontoura, L. Freire-Maia, C. R. S. Machado, E. R. S. Camargos and M. M. Teixeira — 703 — Evidence for a direct action of *Tityus serrulatus* scorpion venom on the cardiac muscle

M. Colombini, I. Fernandes, D. F. Cardoso and A. M. Moura-da-Silva — 711 — *Lachesis muta muta* venom: immunological differences compared with *Bothrops atrox* venom and importance of specific antivenom therapy

A. C. L. Nobre, G. R. Coêlho, M. C. M. Coutinho, M. M. M. Silva, E. V. Angelim, D. B. Menezes, M. C. Fonteles and H. S. A. Monteiro — 721 — The role of phospholipase A_2 and cyclooxygenase in renal toxicity induced by microcystin-LR

Short Communications

S. Taniyama, Y. Mahmud, M. B. Tanu, T. Takatani, O. Arakawa and T. Noguchi — 725 — Delayed haemolytic activity by the freshwater puffer *Tetraodon* sp. toxin

R. E. Hill, G. M. Bogdan and R. C. Dart — 729 — Time to reconstitution: purified Fab antivenom vs. unpurified IgG antivenom

Book Reviews — 733

Bibliography of Toxinology — 735

Vol. 39, No. 6

Review

M. L. Garcia, Y.-D. Gao, O. B. McManus and G. J. Kaczorowski — 739 — Potassium channels: from scorpion venoms to high-resolution structure

Historical review

B. J. Hawgood — 749 — Poul Agerholm Christensen MD (1912–1991): antivenom production at the South African Institute for Medical Research

F. M. B. Ferreira, J. M. F. Soler, M. L. Fidalgo and P. Fernández-Vila — 757 — PSP toxins from *Aphanizomenon flos-aquae* (cyanobacteria) collected in the Crestuma-Lever reservoir (Douro river, northern Portugal)

G. P. Rossini, N. Sgarbi and C. Malaguti — 763 — The toxic responses induced by okadaic acid involve processing of multiple caspase isoforms

M. Pavela-Vrančič, V. Meštrović, I. Marasović, M. Gillman, A. Furey and K. K. James — 771 — The occurrence of 7-*epi*-pectenotoxin-2 seco acid in the coastal waters of the central Adriatic (Kaštela Bay)

N. Osnaya-Romero, T. de Jesus Medina-Hernández, S. S. Flores-Hernández and G. León-Rojas — 781 — Clinical symptoms observed in children envenomated by scorpion stings, at the children's hospital from the State of Morelos, Mexico

J. R. F. Sousa, R. Q. Monteiro, H. C. Castro and R. B. Zingali	787	Proteolytic action of *Bothrops jararaca* venom upon its own constituents
G. León, M. Monge, E. Rojas, B. Lomonte and J. M. Gutiérrez	793	Comparison between IgG and $F(ab')_2$ polyvalent antivenoms: neutralization of systemic effects induced by *Bothrops asper* venom in mice, extravasation to muscle tissue, and potential for induction of adverse reactions
E. C. Jimenez, M. Watkins, L. J. Juszczak, L. J. Cruz and B. M. Olivera	803	Contryphans from *Conus textile* venom ducts
A. G. Craig, M. Park, W. H. Fischer, J. Kang, P. Compain and F. Piller	809	Enzymatic glycosylation of contulakin-G, a glycopeptide isolated from *Conus* venom, with a mammalian ppGalNAc-transferase
H. F. Gomez, M. J. Miller, M. W. Waggener, H. A. Lankford and J. S. Warren	817	Antigenic cross-reactivity of venoms from medically important North American *Loxosceles* spider species
L. de Faria, E. Antunes, C. Bon and A. Lôbo de Araújo	825	Pharmacological characterization of the rat paw edema induced by *Bothrops lanceolatus* (Fer de lance) venom
P. Mehto, M. Ankelo, A. Hinkkanen, A. Mikhailov, J. E. Eriksson, L. Spoof and J. Meriluoto	831	A time-resolved fluoroimmunometric assay for the detection of microcystins, cyanobacterial peptide hepatotoxins
Y. M. Hsiao and J. L. Ko	837	Determination of destruxins, cyclic peptide toxins, produced by different strains of *Metarhizium anisopliae* and their mutants induced by ethyl methane sulfonate and ultraviolet using HPLC method
M. A. P. Camillo, P. C. Arruda Paes, L. R. P. Troncone and J. R. Rogero	843	Gyroxin fails to modify in vitro release of labelled dopamine and acetylcholine from rat and mouse striatal tissue
H. Park, M. Namikoshi, S. M. Brittain, W. W. Carmichael and T. Murphy	855	[D-Leu^1] microcystin-LR, a new microcystin isolated from waterbloom in a Canadian prairie lake
I. M. De-Matos, A. Talvani, O. O. A. Rocha, L. Freire-Maia and M. M. Teixeira	863	Evidence for a role of mast cells in the lung edema induced by *Tityus serrulatus* venom in rats
J. Naar, P. Branaa, M.-Y. Bottein-Dechraoui, M. Chinain and S. Pauillac	869	Polyclonal and monoclonal antibodies to PbTx-2-type brevetoxins using minute amount of hapten–protein conjugates obtained in a reversed micellar medium
Y. Angulo, C. E. Núñez, S. Lizano, A. M. Soares and B. Lomonte	879	Immunochemical properties of the N-terminal helix of myotoxin II, a lysine-49 phospholipase A_2 from *Bothrops asper* snake venom
D. Ammons, J. Rampersad and M. A. Poli	889	Evidence for PSP in mussels in Trinidad
P. Vale and M. A. M. Sampayo	893	Domoic acid in Portuguese shellfish and fish
Short Communications		
T. Suzuki and T. Mitsuya	905	Comparison of dinophysistoxin-1 and esterified dinophysistoxin-1 (dinophysistoxin-3) contents in the scallop *Patinopecten yessoensis* and the mussel *Mytilus galloprovincialis*
C. Chávez-Olórtegui, K. Bohórquez, L. M. Alvarenga, E. Kalapothakis, D. Campolina, W. S. Maria and C. R. Diniz	909	Sandwich-ELISA detection of venom antigens in envenoming by *Phoneutria nigriventer* spider
Book Reviews	913	

Vol. 39, No. 7

Y. N. Utkin, V. V. Kukhtina, I. V. Maslennikov, A. V. Eletsky, V. G. Starkov, C. Weise, P. Franke, F. Hucho and V. I. Tsetlin	921	First tryptophan-containing weak neurotoxin from cobra venom

P. Vélez, J. Sierralta, C. Alcayaga, M. Fonseca, H. Loyola, D. C. Johns, G. F. Tomaselli, E. Marbán and B. A. Suárez-Isla	929	A functional assay for paralytic shellfish toxins that uses recombinant sodium channels
M. B. Tanu, Y. Mahmud, K. Tsuruda, O. Arakawa and T. Noguchi	937	Occurrence of tetrodotoxin in the skin of a rhacophoridid frog *Polypedates* sp. from Bangladesh
Q.-B. Li, G.-W. Huang, K. Kinjoh, M. Nakamura and T. Kosugi	943	Hematological studies on DIC-like findings observed in patients with snakebite in south China
Á. R. de Brandão Prieto da Silva, I. K. Yamagushi, J. F. Morais, H. G. Higashi, I. Raw, P. L. Ho and J. Silveira de Oliveira	949	Cross reactivity of different specific *Micrurus* antivenom sera with homologous and heterologous snake venoms
G. J. Binford	955	An analysis of geographic and intersexual chemical variation in venoms of the spider *Tegenaria agrestis* (Agelenidae)
L. van der Westhuizen, G. S. Shephard and D. J. van Schalkwyk	969	The effect of repeated gavage doses of fumonisin B_1 on the sphinganine and sphingosine levels in vervet monkeys
R. Li, W. W. Carmichael, S. Brittain, G. K. Eaglesham, G. R. Shaw, A. Mahakhant, N. Noparatnaraporn, W. Yongmanitchai, K. Kaya and M. M. Watanabe	973	Isolation and identification of the cyanotoxin cylindrospermopsin and deoxy-cylindrospermopsin from a Thailand strain of *Cylindrospermopsis raciborskii* (Cyanobacteria)
J. J. Chung, L. A. Ratnapala, I. M. Cooke and A. A. Yanagihara	981	Partial purification and characterization of a hemolysin (CAH1) from Hawaiian box jellyfish (*Carybdea alata*) venom
C. Kushmerick, F. Mesquita de Carvalho, M. de Maria, A. R. Massensini, M. A. Romano-Silva, M. V. Gomez, E. Kalapothakis and M. A. M. Prado	991	Effects of a *Lasiodora* spider venom on Ca^{2+} and Na^{+} channels
O. Clot-Faybesse, C. Devaux, H. Rochat and R. Guieu	1003	In vivo neurotoxicity of *Androctonus australis hector* scorpion venom: evidence that the supra-thoracic nervous system is not implicated in the clinical manifestations
A. M. C. Pimenta, M.-F. Martin-Eauclaire, H. Rochat, S. G. Figueiredo, E. Kalapothakis, L. C. C. Afonso and M. E. De Lima	1009	Purification, amino-acid sequence and partial characterization of two toxins with anti-insect activity from the venom of the South American scorpion *Tityus bahiensis* (Buthidae)
A. F. Flanagan, K. R. Callanan, J. Donlon, R. Palmer, A. Forde and M. Kane	1021	A cytotoxicity assay for the detection and differentiation of two families of shellfish toxins
C. Y. Chen and H. N. Chou	1029	Accumulation and depuration of paralytic shellfish poisoning toxins by purple clam *Hiatula rostrata* Lighttoot
H. Ramstad, P. Hovgaard, T. Yasumoto, S. Larsen and T. Aune	1035	Monthly variations in diarrhetic toxins and yessotoxin in shellfish from coast to the inner part of the Sognefjord, Norway
M. Balass, E. Kalef, S. Fuchs and E. Katchalski-Katzir	1045	A cyclic peptide with high affinity to α-bungarotoxin protects mice from the lethal effect of the toxin
V. C. Danel, P. F. Saviuc and D. Garon	1053	Main features of *Cortinarius* spp. poisoning: a literature review
J. Arita, K. Takemura, Y. Nagashima and K. Shiomi	1061	Purification and properties of a proteinaceous toxin from the brackishwater clam (*Corbicula japonica*)
Y. Yamaguchi, Y. Shimohigashi, T. Chijiwa, M. Nakai, T. Ogawa, S. Hattori and M. Ohno	1069	Characterization, amino acid sequence and evolution of edema-inducing, basic phospholipase A_2 from *Trimeresurus flavoviridis* venom
V. Freitas de Magalhães, R. Moraes Soares and S. M. F. O. Azevedo	1077	Microcystin contamination in fish from the Jacarepaguá Lagoon (Rio de Janeiro, Brazil): ecological implication and human health risk

S. Suntrarachun, N. Pakmanee, T. Tirawatnapong, L. Chanhome and V. Sitprija 1087 Development of a polymerase chain reaction to distinguish monocellate cobra (*Naja khouthia*) bites from other common Thai snake species, using both venom extracts and bite-site swabs

Book Reviews 1091

Vol. 39, No. 8

Review
A. H. Daranas, M. Norte and J. J. Fernández 1101 Toxic marine microalgae

L. Xiuxia, C. Jiashu, Z. Yingna, Q. Pengxin and Y. Guangmei 1133 Purification and biochemical characterization of F II_a, a fibrinolytic enzyme from *Agkistrodon acutus* venom

T. F. Salvini, A. C. Amaral, E. H. Miyabara, J. A. O. Turri, P. M. Danella and H. S. Selistre de Araújo 1141 Systemic skeletal muscle necrosis induced by crotoxin

O. Rossetto, P. Caccin, M. Rigoni, F. Tonello, N. Bortoletto, R. C. Stevens and C. Montecucco 1151 Active-site mutagenesis of tetanus neurotoxin implicates TYR-375 and GLU-271 in metalloproteolytic activity

G. Delfino, D. Nosi and F. Giachi 1161 Secretory granule-cytoplasm relationships in serous glands of anurans: ultrastructural evidence and possible functional role

M. Chacur, G. Picolo, J. M. Gutiérrez, C. F. P. Teixeira and Y. Cury 1173 Pharmacological modulation of hyperalgesia induced by *Bothrops asper* (terciopelo) snake venom

J. Dahlmann, A. Rühl, C. Hummert, G. Liebezeit, P. Carlsson and E. Granéli 1183 Different methods for toxin analysis in the cyanobacterium *Nodularia spumigena* (Cyanophyceae)

J.-G. Ye, J. Chen, X.-P. Zuo and Y.-H. Ji 1191 Cloning and characterization of cDNA sequences encoding two novel α-like-toxin precursors from the Chinese scorpion *Buthus martensii* Karsch

N. Bouaïcha, A. Chézeau, J. Turquet, J.-P. Quod and S. Puiseux-Dao 1195 Morphological and toxicological variability of *Prorocentrum lima* clones isolated from four locations in the south-west Indian Ocean

Y. Jin, Q.-M. Lu, J.-F. Wei, D.-S. Li, W.-Y. Wang and Y.-L. Xiong 1203 Purification and characterization of jerdofibrase, a serine protease from the venom of *Trimeresurus jerdonii* snake

R. A. M. B. Borgheresi, M. S. Palma, F. Ducancel, A. C. M. Camargo and E. Carmona 1211 Expression and processing of recombinant sarafotoxins precursor in *Pichia pastoris*

D. J. Stirling and M. A. Quilliam 1219 First report of the cyanobacterial toxin cylindrospermopsin in New Zealand

Y.-a. Zhang, J. Abe, A. Siddiq, H. Nakagawa, S. Honda, T. Wada and S. Ichida 1223 UT841 purified from sea urchin (*Toxopneustes pileolus*) venom inhibits time-dependent $^{45}Ca^{2+}$ uptake in crude synaptosome fraction from chick brain

M. Jugé, N. Grimaud, J.-F. Biard, M.-P. Sauviat, M. Nabil, J.-F. Verbist and J.-Y. Petit 1231 Cardiovascular effects of lepadiformine, an alkaloid isolated from the ascidians *Clavelina lepadiformis* (Müller) and *C. moluccensis* (Sluiter)

T. Yan, M. Zhou, M. Fu, Y. Wang, R. Yu and J. Li 1239 Inhibition of egg hatching success and larvae survival of the scallop, *Chlamys farreri*, associated with exposure to cells and cell fragments of the dinoflagellate *Alexandrium tamarense*

Z. Amzil, J. Fresnel, D. Le Gal and C. Billard 1245 Domoic acid accumulation in French shellfish in relation to toxic species of *Pseudo-nitzschia multiseries* and *P. pseudodelicatissima*

V. Huerta, V. Morera, Y. Guanche, G. Chinea, L. J. González, L. Betancourt, D. Martínez, C. Alvarez, M. E. Lanio and V. Besada 1253 Primary structure of two cytolysin isoforms from *Stichodactyla helianthus* differing in their hemolytic activity

Short Communications

K. Konno, M. Hisada, H. Naoki, Y. Itagaki, T. Yasuhara, M. A. Juliano, L. Juliano, M. Palma, T. Yamane and T. Nakajima — 1257 — Isolation and sequence determination of peptides in the venom of the spider wasp (*Cyphononyx dorsalis*) guided by matrix-assisted laser desorption/ionization time of flight (MALDI-TOF) mass spectrometry

M. Yotsu-Yamashita and D. Mebs — 1261 — The levels of tetrodotoxin and its analogue 6-*epi*tetrodotoxin in the red-spotted newt, *Notophthalmus viridescens*

Vol. 39, No. 9

Mini-review

K. G. Chandy, M. Cahalan, M. Pennington, R. S. Norton, H. Wulff and G. A. Gutman — 1269 — Potassium channels in T lymphocytes: toxins to therapeutic immunosuppressants

Review

B. J. Hawgood — 1277 — Karl Heinrich Slotta (1895–1987) biochemist: snakes, pregnancy and coffee

J. E. Laithwaite, S. J. Benn, W. S. Marshall, D. J. FitzGerald and J. LaMarre — 1283 — Divergent *Pseudomonas* exotoxin A sensitivity in normal and transformed liver cells is correlated with low-density lipoprotein receptor-related protein expression

S.-Y. Zhu, W.-X. Li and X.-C. Zeng — 1291 — Precursor nucleotide sequence and genomic organization of BmTXKS1, a new scorpion toxin-like peptide from *Buthus martensii* Karsch

M. Torres, M. B. Aguilar, A. Falcón, L. Sánchez, F. F. Y. Radwan, J. W. Burnett, E. P. Heimer-de la Cotera and R. O. Arellano — 1297 — Electrophysiological and hemolytic activity elicited by the venom of the jellyfish *Cassiopea xamachana*

C. V. Jurasinski, E. Lieth, A. N. Dang Do and C.-L. Schengrund — 1309 — Correlation of cleavage of SNAP-25 with muscle function in a rat model of Botulinum neurotoxin type A induced paralysis

M. N. Krifi, K. Miled, M. Abderrazek and M. El Ayeb — 1317 — Effects of antivenom on *Buthus occitanus tunetanus* (Bot) scorpion venom pharmacokinetics: towards an optimization of antivenom immunotherapy in a rabbit model

Y. Komori, T. Nonogaki and T. Nikai — 1327 — Hemorrhagic activity and muscle damaging effect of *Pseudomonas aeruginosa* metalloproteinase (elastase)

P. Guilherme, I. Fernandes and K. C. Barbaro — 1333 — Neutralization of dermonecrotic and lethal activities and differences among 32–35 kDa toxins of medically important *Loxosceles* spider venoms in Brazil revealed by monoclonal antibodies

A. B. G. Veiga, B. Blochtein and J. A. Guimarães — 1343 — Structures involved in production, secretion and injection of the venom produced by the caterpillar *Lonomia obliqua* (Lepidoptera, Saturniidae)

C. Laothong and V. Sitprija — 1353 — Decreased parasympathetic activities in Malayan krait (*Bungarus candidus*) envenoming

X.-l. Xu and Q.-l. Liu — 1359 — Binding of anticoagulation factor II from the venom of *Agkistrodon acutus* with activated coagulation factor X

C. J. Gordon, K. L. Kimm-Brinson, B. Padnos and J. S. Ramsdell — 1367 — Acute and delayed thermoregulatory response of mice exposed to brevetoxin

B. Oudra, M. Loudiki, B. Sbiyyaa, R. Martins, V. Vasconcelos and N. Namikoshi — 1375 — Isolation, characterization and quantification of microcystins (heptapeptides hepatotoxins) in *Microcystis aeruginosa* dominated bloom of Lalla Takerkoust lake–reservoir (Morocco)

C. F. Franco-Penteado, I. DeSouza, S. A. Teixeira, G. Ribeiro-DaSilva, G. De Nucci and E. Antunes — 1383 — Involvement of nitric oxide on the peritoneal neutrophil influx induced by staphylococcal enterotoxin B in mouse

H. Ramstad, J. L. Shen, S. Larsen and T. Aune 1387 The validity of two HPLC methods and a colorimetric PP2A assay related to the mouse bioassay in quantification of diarrhetic toxins in blue mussels (*Mytilus edulis*)

H. Ramstad, S. Larsen and T. Aune 1393 Repeatability and validity of a fluorimetric HPLC method in the quantification of yessotoxin in blue mussels (*Mytilus edulis*) related to the mouse bioassay

P. Brigatte, F. A. Hoffmann, M. M. Bernardi, R. Giorgi, I. Fernandes, H. A. Takehara, S. B. M. Barros, M. G. Almeida and Y. Cury 1399 Tolerance to the antinociceptive effect of *Crotalus durissus terrificus* snake venom in mice is mediated by pharmacodynamic mechanisms

J. McElhiney, L. A. Lawton and C. Leifert 1411 Investigations into the inhibitory effects of microcystins on plant growth, and the toxicity of plant tissues following exposure

D. Šuput, R. Frangež and M. Bunc 1421 Cardiovascular effects of equinatoxin III from the sea anemone *Actinia equina* (L.)

A. Bee, R. D. G. Theakston, R. A. Harrison and S. D. Carter 1429 Novel in vitro assays for assessing the haemorrhagic activity of snake venoms and for demonstration of venom metalloproteinase inhibitors

Short Communications

W. T. Shier, A. C. Shier, W. Xie and C. J. Mirocha 1435 Structure-activity relationships for human estrogenic activity in zearalenone mycotoxins

G. A. Gerencser and K. M. Cornette 1439 Effect of *Laticauda semifasciata* (sea snake) venom on chloride transport across the frog skin

Vol. 39, No. 10

Mini-review

J. M. McIntosh and R. M. Jones 1447 Cone venom–from accidental stings to deliberate injection

A. Mikhailov, A.-S. Härmälä-Braskén, E. Polosukhina, A. Hanski, M. Wahlsten, K. Sivonen and J. E. Eriksson 1453 Production and specificity of monoclonal antibodies against nodularin conjugated through *N*-methyldehydrobutyrine

V. Vasconcelos, S. Oliveira and F. O. Teles 1461 Impact of a toxic and a non-toxic strain of *Microcystis aeruginosa* on the crayfish *Procambarus clarkii*

D. D. de Carvalho, S. Schmitmeier, J. C. Novello and F. Markland 1471 Effect of BJcuL (a lectin from the venom of the snake *Bothrops jararacussu*) on adhesion and growth of tumor and endothelial cells

Y. Oshima-Franco, G. B. Leite, G. H. Silva, D. F. Cardoso, S. Hyslop, J. R. Giglio, M. A. da Cruz-Höfling and L. Rodrigues-Simioni 1477 Neutralization of the pharmacological effects of bothropstoxin-I from *Bothrops jararacussu* (jararacuçu) venom by crotoxin antiserum and heparin

C. Chotwiwatthanakun, R. Pratanaphon, S. Akesowan, S. Sriprapat and K. Ratanabanangkoon 1487 Production of potent polyvalent antivenom against three elapid venoms using a low dose, low volume, multi-site immunization protocol

A. C. Pessini, T. T. Takao, E. C. Cavalheiro, W. Vichnewski, S. V. Sampaio, J. R. Giglio and E. C. Arantes 1495 A hyaluronidase from *Tityus serrulatus* scorpion venom: isolation, characterization and inhibition by flavonoids

S. R. Zamuner, J. M. Gutiérrez, M. N. Muscará, S. A. Teixeira and C. F. P. Teixeira 1505 *Bothrops asper* and *Bothrops jararaca* snake venoms trigger microbicidal functions of peritoneal leukocytes in vivo

S. Prabakaran, W. Tepp and B. R. DasGupta 1515 Botulinum neurotoxin types B and E: purification, limited proteolysis by endoproteinase Glu-C and pepsin, and comparison of their identified cleaved sites relative to the three-dimensional structure of type A neurotoxin

D. Wang and D. P. H. Hsieh	1533	Dynamics of C2 toxin and chlorophyll-*a* formation in the dinoflagellate *Alexandrium tamarense* during large scale cultivation
I. Bravo, M. L. Fernández, I. Ramilo and A. Martínez	1537	Toxin composition of the toxic dinoflagellate *Prorocentrum lima* isolated from different locations along the Galician coast (NW Spain)
D. Martinez, A. M. Campos, F. Pazos, C. Alvarez, M. E. Lanio, F. Casallanovo, S. Schreier, R. K. Salinas, C. Vergara and E. Lissi	1547	Properties of St I and St II, two isotoxins isolated from *Stichodactyla helianthus*: a comparison
C.-L. Ho, Y.-P. Shih, K.-T. Wang and H.-M. Yu	1561	Enhancing the hypotensive effect and diminishing the cytolytic activity of hornet mastoparan B by D-amino acid substitution
P. B. Clissa, G. D. Laing, R. D. G. Theakston, I. Mota, M. Taylor and A. M. Moura-da-Silva	1567	The effect of jararhagin, a metalloproteinase from *Bothrops jararaca* venom, on pro-inflammatory cytokines released by murine peritoneal adherent cells
P. Gajdek, Z. Lechowski, T. Bochnia and M. Kępczyński	1575	Decomposition of microcystin-LR by Fenton oxidation
M. Alami, L. Ouafik, B. Céard, C. Legros, P. E. Bougis and M.-F. Martin-Eauclaire	1579	Characterisation of the gene encoding the α-toxin Amm V from the scorpion *Androctonus mauretanicus mauretanicus*
C. E. Núñez, Y. Angulo and B. Lomonte	1587	Identification of the myotoxic site of the Lys49 phospholipase A_2 from *Agkistrodon piscivorus piscivorus* snake venom: synthetic C-terminal peptides from Lys49, but not from Asp49 myotoxins, exert membrane-damaging activities
C. D. Giuliani, M. R. C. Iemma, A. C. V. Bondioli, D. H. F. Souza, L. L. Ferreira, A. C. Amaral, T. F. Salvini and H. S. Selistre-de-Araujo	1595	Expression of an active recombinant lysine 49 phospholipase A_2 myotoxin as a fusion protein in bacteria
G. N. Farhat, N. I. Affara and H. U. Gali-Muhtasib	1601	Seasonal changes in the composition of the essential oil extract of East Mediterranean sage (*Salvia libanotica*) and its toxicity in mice
Short Communication		
W. S. Maria, B. G. Pacheco, C. F. Barbosa, D. T. Velarde and C. Chávez-Olórtegui	1607	Determination of the neutralizing potency of horse antibothropic and anticrotalic antivenoms in blood samples collected on filter paper
Book Reviews	1611	

Vol. 39, No. 11

Special Issue: Bacterial Toxins

Y. Horiguchi	1619	*Escherichia coli* cytotoxic necrotizing factors and *Bordetella* dermonecrotic toxin: the dermonecrosis-inducing toxins activating Rho small GTPases
K. Sandvig	1629	Shiga toxins
M. Fivaz, L. Abrami, Y. Tsitrin and F. G. van der Goot	1637	Not as simple as just punching a hole
C. Wilde and K. Aktories	1647	The Rho-ADP-ribosylating C3 exoenzyme from *Clostridium botulinum* and related C3-like transferases
G. Menestrina, M. Dalla Serra and G. Prévost	1661	Mode of action of β-barrel pore-forming toxins of the staphylococcal α-hemolysin family
P. Boquet	1673	The cytotoxic necrotizing factor 1 (CNF1) from *Escherichia coli*
M. Palmer	1681	The family of thiol-activated, cholesterol-binding cytolysins

H. Müller-Alouf, C. Carnoy, M. Simonet and J. E. Alouf	1691	Superantigen bacterial toxins: state of the art
E. A. Johnson and M. Bradshaw	1703	*Clostridium botulinum* and its neurotoxins: a metabolic and cellular perspective
S. Olsnes and J. V. Kozlov	1723	Ricin
X. Cortes-Bratti, T. Frisan and M. Thelestam	1729	The cytolethal distending toxins induce DNA damage and cell cycle arrest
C. L. Sears	1737	The toxins of *Bacteroides fragilis*
F. Brossier and M. Mock	1747	Toxins of *Bacillus anthracis*
E. Papini, M. Zoratti and T. L. Cover	1757	In search of the *Helicobacter pylori* VacA mechanism of action
O. Matsushita and A. Okabe	1769	Clostridial hydrolytic enzymes degrading extracellular components
B. A. McClane	1781	The complex interactions between *Clostridium perfringens* enterotoxin and epithelial tight junctions
R. J. Collier	1793	Understanding the mode of action of diphtheria toxin: a perspective on progress during the 20th century

Vol. 39, No. 12

Mini-review		
D. J. Craik	1809	Plant cyclotides: circular, knotted peptide toxins
K. R. Aoki	1815	A comparison of the safety margins of botulinum neurotoxin serotypes A, B, and F in mice
H. Zhao, J. Zheng and Z. Jiang	1821	Pharmacokinetics of thrombin-like enzyme from venom of *Agkistrodon halys ussuriensis Emelianov* determined by ELISA in the rat
Y. Sakurai, H. Takatsuka, A. Yoshioka, T. Matsui, M. Suzuki, K. Titani and Y. Fujimura	1827	Inhibition of human platelet aggregation by L-amino acid oxidase purified from *Naja naja kaouthia* venom
J. W. Brown, C. T. Kesler, J. T. Neary and L. M. Fishman	1835	Effects of marine sponge extracts on mitogen-activated protein kinase ($MAPK/ERK_{1,2}$) activity in SW-13 human adrenal carcinoma cells
A. Havt, M. C. Fonteles and H. S. A. Monteiro	1841	The renal effects of *Bothrops jararacussu* venom and the role of PLA_2 and PAF blockers
P. T. Orr, G. J. Jones, R. A. Hunter, K. Berger, D. A. De Paoli and C. L. A. Orr	1847	Ingestion of toxic *Microcystis aeruginosa* by dairy cattle and the implications for microcystin contamination of milk
H. Taleb, P. Vale, E. Jaime and M. Blaghen	1855	Study of paralytic shellfish poisoning toxin profile in shellfish from the Mediterranean shore of Morocco
M. H. Borges, A. M. Soares, V. M. Rodrigues, F. Oliveira, A. M. Fransheschi, A. Rucavado, J. R. Giglio and M. I. Homsi-Brandeburgo	1863	Neutralization of proteases from *Bothrops* snake venoms by the aqueous extract from *Casearia sylvestris* (Flacourtiaceae)
B. Fathi H, E. G. Rowan and A. L. Harvey	1871	The facilitatory actions of snake venom phospholipase A_2 neurotoxins at the neuromuscular junction are not mediated through voltage-gated K^+ channels
S. Miyoshi, K. Kawata, K. Tomochika, S. Shinoda and S. Yamamoto	1883	The C-terminal domain promotes the hemorrhagic damage caused by *Vibrio vulnificus* metalloprotease
H.-G. Zha, W.-H. Lee and Y. Zhang	1887	Cloning of cDNAs encoding C-type lectins from *Elapidae* snakes *Bungarus fasciatus* and *Bungarus multicinctus*

M. Corona, N. A. Valdez-Cruz, E. Merino, M. Zurita and L. D. Possani 1893 Genes and peptides from the scorpion *Centruroides sculpturatus* Ewing, that recognize Na^+-channels

D. J. D. Espiritu, M. Watkins, V. Dia-Monje, G. E. Cartier, L. J. Cruz and B. M. Olivera 1899 Venomous cone snails: molecular phylogeny and the generation of toxin diversity

K. Ichimi, T. Suzuki and M. Yamasaki 1917 Non-selective retention of PSP toxins by the mussel *Mytilus galloprovincialis* fed with the toxic dinoflagellate *Alexandrium tamarense*

J. F. Blom, J. A. Robinson and F. Jüttner 1923 High grazer toxicity of [D-Asp^3,(*E*)-Dhb^7]microcystin-RR of *Planktothrix rubescens* as compared to different microcystins

P. B. Oelrichs, J. K. MacLeod, A. A. Seawright and P. B. Grace 1933 Isolation and identification of the toxic peptides from *Lophyrotoma zonalis* (Pergidae) sawfly larvae

Short Communication

S. A. Weinstein, V. Williams and J. White 1937 Preliminary characteristics of the prothrombin converting enzyme from venom of Stephen's banded snake (*Hoplocephalus stephensii*)

G. Isbister 1941 Letter to the editor

A. R. Young and S. J. Pincus 1943 Reply

Book Reviews 1945

Bibliography of Toxinology 1947

Volume Contents I

Author Index XVII